Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	IB Docket No. 95-91
Establishment of Rules and Policies for	)	RM No. 8610
the Digital Audio Radio Satellite Service	)	DA No. 01-2570
in the 2310-2360 MHz Frequency Band	)	

REPLY COMMENTS OF BEAMREACH NETWORKS

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December 21, 2001

SUMMARY

In their reply comments to the Commissions recent Public Notice, the SDARS operators have taken the stance that the ONLY concern for the Commission to consider is that SDARS operators be able to provide a high quality service product. Their comments consistently show no regard or concern for the interference that their wide-spread deployment of terrestrial repeaters may cause WCS operators or any other spectrum licensees. In our comments to the Commission as part of the WCS Coalition, we have consistently strived for a rulemaking that allows both the WCS operators and SDARS operators to coexist in their adjacent bands. FCC licensing rules implore the Commission to adopt a set of rules, one example of which is the Sunset Proposal proffered by the WCS Coalition in its comments to the Commission on December 14th and previous submissions, that allows all licensees to use their licenses for the purposes for which the licenses were procured.

The SDARS licensees fully expect the Commission to allow them to continue with the deployment and operation of their “experimental” nationwide terrestrial high power repeater networks by imposing debilitating interference upon WCS licensees – and to do so without absorbing any of the cost, or recognizing the need for co-existence with the WCS license holders. The SDARS operators point out that they "have taken the risk of proceeding with system deployment", at their own risk and folly, despite the pending rules process, and their dubious claim to be able to deploy high-powered repeaters indiscriminately. The Commission should and must disregard this issue in their rules consideration, and have in fact reiterated this in their issuing of the STA. While they argue for the Commission’s support in their comments due to the fact that they have

invested heavily in their infrastructure, it should be recognized that whatever capital has been spent by the SDARS operators in absence of any rulemaking, has been entirely at their own peril. Likewise, BeamReach has invested in over 250 man-years of product development effort to bring a WCS broadband product to the market. The prospects for our company's products and for a viable broadband service in the band will be immeasurably damaged by the adoption of rules allowing SDARS repeaters to cause blanket interference in the WCS band.

Consistently throughout their comments, both Sirius and XM have made erroneous, misleading, and one-sided arguments. Instead of proposing solutions that may allow the WCS operators and SDARS operators to harmoniously service their constituents, or seeking ways to move toward 2KW limits for the terrestrial repeaters in their networks, their proposal insists on being allowed to deploy an unlimited number of high-powered repeaters. This completely disregards the interference that it may cause WCS operators or any other service in adjacent bands, with no need for coordination, turning down power, or ceasing operation of its repeaters.

Their proposals for compensation are short lived, inadequate, and incomplete. They exclude any form of compensation for the CPE, the area of prime consideration for interference damage. The timeframe of 12 months that is proposed for compensation is less than the timeframe during which WCS BWA equipment will actually be deployed, and therefore is completely disingenuous. The compensation limit of $1,000,000 is a drop in the bucket compared to what would be necessary to compensate for the damage across a nationwide deployment.

The SDARS operators have offered a new definition of EIRP that does not reflect the actual interference damage caused by higher power repeaters. The primary reason for attempting to rewrite the laws of physics by redefining EIRP is to reclassify higher power repeaters as low power repeaters. The critical issue as to the exclusion area of interference damaging to WCS equipment, is the broadcast power from the antenna, no matter whether a directional antenna is used or not.

A more sensible, substantive, and straightforward approach to resolving the blanketing interference and intermodulation distortion created by high power repeaters is the Sunset Proposal developed by the WCS Coalition. This approach allows both SDARS and WCS to co-exist within the bands that they have licensed, and would share the burden on both parties to resolve interference issues. This would also preserve the integrity of the spectrum auction process by enabling the rightful WCS licensees the capability to successfully operate broadband wireless access networks within their spectrum.

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INTRODUCTION

BeamReach Network, Inc. hereby responds to the comments submitted by XM Radio, Inc.[1] and Sirius Satellite Radio Inc. in response to the Public Notice ("PN") issued by the International Bureau in this proceeding. XM and Sirius have taken a position throughout their reply comments that the only concern in the rulemaking process is the successful implementation of a "high quality" SDARS service with no regard for coexistence with WCS operator in adjacent bands, or any other service providers. One of the primary functions of the FCC should be to establish rules that enable all licensees to use their spectrum free from interference of other users. For this reason the Commission should reject the rules advocated in XM and Sirius' reply comments that would subjugate the WCS band to SDARS high power terrestrial repeater operations in perpetuity and virtually without compensation.

XM and Sirius are proposing to provide a new entertainment service with an unknown market acceptance. The broadband wireless access service which is to be deployed by the WCS operators is an important service for providing a competitive and

complementary service to other broadband service options, and represents the best option in many cases for closing the digital divide that now exists in many rural and underserved areas.

The WCS operators have invested in the spectrum licenses they bought at auction with the understanding that their spectrum would be appropriately protected over the life of their 10-year licenses. Likewise, BeamReach has invested in over 250 man-years of product development effort to bring a WCS broadband product to the market. Equipment for BWA service has been developed with the understanding that the FCC would continue all previous precedents of making sure that adjacent spectrum bands support signals of like power levels. Since WCS equipment manufacturers are already forced to design to a maximum 2 KW power level due to regulatory, health, and safety considerations, the design approach taken by BeamReach Networks is sound and expert. To expect that a WCS receiver be able to successfully receive its own 2 KW signal and yet filter out a 40 KW signal from an adjacent band is unreasonable and unnecessary. Adoption of rules to equalize the signal levels of SDARS and WCS is the best and most equitable solution.

REBUTTAL COMMENTS

In addition to the comments forwarded by BeamReach as part of its membership in the WCS Coalition, BeamReach would like to offer the following further comments.

The SDARS operators have now changed their tune once again in requesting that there be no limits on high power repeaters that can be deployed. When they initially

proposed to the commission that SDARS operators would need to deploy terrestrial repeaters to compensate for the poor design of the original satellite-only network, the SDARS operators indicated that they would need to deploy less than 150 repeaters each. In their application for the STA, each operator indicated that the high-powered repeaters listed on their application would be the maximum number of repeaters that would ever be needed for deployment. Now, these same operators are requesting to be allowed to deploy an unlimited number of high power repeaters, increasing the damage caused to other licensed services in adjacent bands. Even as of this writing, the SDARS operators have not made a complete public representation of all of the repeaters that they have deployed or plan to deploy in the future.

The SDARS operators have claimed that WCS operators have been warehousing their spectrum. The WCS licenses are for a full term of ten years. The primary application being implemented for the WCS band is broadband wireless access (BWA). It is only recently that commercially viable equipment for BWA in the WCS band has become available. An example of such equipment is becoming available from BeamReach Networks. BeamReach has invested over 250man-years of effort in developing a unique system that can provide broadband wireless access in the WCS band. Very rigorous rules have been written by the commission regarding out of band emissions for the WCS band with the express intent of protecting the SDARS service. BeamReach has taken very great care in the design of its product to ensure compliance with these rules with the reasonable assumption that rules for the SDARS band would be created to protect service in the WCS band.

Broadband wireless access is an important communications service for the nation, as both a complementary and competitive technology for broadband access for homes and businesses, along with DSL and cable modems. Operators expect that the major deployments of BWA systems in the WCS band will be taking place in the next 12-18 months.

The SDARS operators, after proposing that no other high power repeaters would be deployed beyond those listed in their STA application, now state that they "plan to shift repeaters from larger markets to smaller markets." Previously, the SDARS operators had stated that the repeater networks were only required in areas to compensate for dense buildings. Now the whole inadequacy of the satellite design is brought to light by the need to add repeaters, even in small markets. They further mischaracterize WCS operator plans by stating that there are no plans to deploy BWA systems in smaller markets. If fact, these are some of the most important markets for BWA systems. It is in the less densely populated areas where broadband wireless access can economically provide broadband services where DSL and cable modems cannot. BWA is an important technology for closing the broadband digital divide that is currently plaguing more rural areas. Therefore the unencumbered use of WCS licenses for rural BWA is critical to the public interest.

The SDARS operators' comments on compensation are disingenuous at best. Any compensation scheme must account for all affected equipment, primarily the CPE equipment. It is the interference to the CPE that marks the exclusion zones that limit geographic areas where BWA service cannot be deployed due to debilitating interference from SDARS repeaters. The timeframe proposed by the SDARS operators does not

protect WCS operators over the life of their licenses, and would practically negate the payment of any compensation since very few commercial installations of WCS equipment would be completed in the next 12 months. In addition, there should be no limitation in the compensation to be paid. Even with these considerations, it is BeamReach's position that the primary objective of the rule making should be limitation of interference on WCS equipment.

The SDARS operators are attempting to rewrite the laws of physics by redefining EIRP. Commenting on the example in XM's submission, a 90 degree-sectored antenna with 4X the EIRP would cause an exclusion zone of 4X the area of an omni 360 degree antenna with one fourth the power of the sectored antenna. A higher power broadcast signal increases the area of interference as the square of the power increase. Therefore, a signal that is 4X greater would cast an interference shadow 16X greater. Even a sectored antenna that covered only 90 degrees would have an exclusion zone 4X as great as an omni antenna with one-fourth the power. The critical issue as to the interference caused to WCS equipment is the broadcast power from the antenna, no matter whether a directional antenna is used or not.

In comments to, and in proceedings before the Commission, the WCS Coalition has repeatedly offered evidence showing that the "technical" solutions repeatedly proposed by the SDARS operators – filtering at the base station and Automatic Gain Control at the CPE – cannot be implemented economically, if at all, when the proposed disparity of transmit power is allowed in the final rules making for SDARS repeaters.

Historically, the Commission has adopted a policy of only allowing services with similar broadcast power in adjacent bands, which in this case would warrant the adoption of a 2 KW limit of the SDARS repeater network. The SDARS operators continue to unabatedly insist on more and more high power repeaters that will render the deployment of broadband wireless services in the WCS band untenable.

The WCS Coalition has proposed a very straightforward Sunset Proposal that would avoid compensation issues entirely and, ultimately, would harmonize the power levels used in this band at the recognized standard – 2 kW EIRP. This proposal would allow the SDARS operators to gradually reconfigure their repeater networks on an as-needed basis over the course of five years. The proposal makes the possible accommodation of not even requiring changes in the SDARS repeater network if it can be shown that no interference is taking place. From an operational, regulatory and cooperative standpoint, the Sunset Proposal is the fairest, and most straightforward proposal offered in this proceeding.

CONCLUSION

The Commission should be focused on the rights of all licensees to use the spectrum that they have licensed for the purpose for which it was intended. WCS licensees only now have equipment available for profitable commercial deployment of broadband wireless access systems, and will do so in the next 12-18 months. WCS operators will provide an important competitive broadband service if deployment in this band is not destroyed by the excessive interference that will be caused by the proliferation of high-powered repeaters proposed by the SDARS operators. In addition to

protecting the viability of the purchased rights of the WCS operators, the Commission should consider the effect on future spectrum auctions of nullifying the viability of a spectrum band after well-intended operators have acquired it via auction. The WCS Coalition has proposed a fair and implementable set of rules in its Sunset Proposal. The SDARS operators have countered with an ominous set of suggestions designed only to ensure the easy and quick deployment of their service at the grave expense of WCS licensees. BeamReach urges the Commission to adopt a set of rules based on the Sunset Proposal.

Respectfully submitted,

__/s/_____
Randall Schwartz
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December 21, 2001